ACC NR: AP7001848 SOURCE CODE: UR/0021/66/000/012/1567/1572

AUTHOR: Kushnirenko, A. N.

ORG: Institute of Problems in Materials Study, AN UkrSSR (Instytut problem materialoznavstva AN URSR)

TITLE: Calculation of energy spectrum of atomic nuclei in nuclear quantum-field theory

SOURCE: AN UkrSSR. Dopovidi, no. 12, 1966, 1567-1572

TOPIC TAGS: quantum field theory, nucleon interaction, nuclear scattering, scattering matrix, energy spectrum, nucleus

ABSTRACT: To calculate the energy spectrum of the nucleus a theorem is used which gives correlation of the energy-operator eigenvalues with the scattering matrix. The author suggests calculating the S-matrix which is a part of the expression for the eigenvalue of the energy operator by use of a method developed previously (IVUZ, seriya Fizika, 3, 19, 1965). Numerical methods for calculating the energy spectra of atomic nuclei are based on use of the law of interaction between nucleons. The author examines the concept of a nuclear theory structure in which the atomic nucleus is regarded as a system of nucleons which interact with each other through a meson pseudoscalar field with a pseudoscalar bond. The energy operator in such a system has the form

$$\hat{H} = \hat{H}_0 + \hat{H}_1 = \hat{H}_N + \hat{H}_m + \hat{H}_i, \quad (1)$$

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where

$$\hat{H}_N = -i\hbar c \int dV \hat{N} \sum_{m=1}^{2} \hat{\Psi}_m \left(\sum_{i=1}^{3} \hat{\gamma}_i \frac{\partial}{\partial x_i} + \varkappa \right) \hat{\Psi}_m \qquad (2)$$

is the energy operator in the free nuclon field;

$$\hat{H}_m = \frac{1}{2} \sum_{a} \int dV \left[\left(\frac{\partial \varphi_a}{\partial t} \right)^2 + (c\nabla\varphi_a)^2 + c^2\mu^2\hat{\varphi}_a^2 \right] \qquad (3)$$

is the energy operator of the free pseudoscalar meson field; and

$$H_i = -cf \int dV \hat{N} [(\hat{\bar{\Psi}}_1\hat{\gamma}_5\hat{\Psi}_1 - \hat{\bar{\Psi}}_2\hat{\gamma}_5\hat{\Psi}_2)\hat{\varphi}_3 + V\overline{2}(\hat{\bar{\Psi}}_1\hat{\gamma}_5\hat{\Psi}_2\hat{\varphi}^+ + \hat{\bar{\Psi}}_2\hat{\gamma}_5\hat{\Psi}_1\hat{\varphi})] \qquad (4)$$

is the interaction energy operator. These expressions include operators for proton field, neutron field, nucleon mass, meson field, and meson mass; and a bond constant. Paper presented by I. M. Frantsevich, Academician AN UkrSSR. Orig. art. has: 37 formulas.

SUB CODE: 20/ SUBM DATE: 02Feb66/ ORIG REF: 001

ACC NR: AP7004194 SOURCE CODE: UR/0125/67/000/001/0031/0035

AUTHOR: Makara, A.M.; Kushnirenko, B.N.

ORG: Electric Welding Institute im Ye.O. Paton, AN UkrSSR. (Institut elektrosuarki AN UkrSSR)

TITLE: Transverse motion of arc improves the structure and properties of welded joints

SOURCE: Avtomaticheskaya svarka, no. 1, 1967, 31-35

TOPIC TAGS: welding, TIG welding, steel, metal welding, ~~arc welding effect, weld metal structure, weld~~ metal property, superstrength steel, ~~welding~~, austenitic steel ~~welding~~/42Kh2GSNM steel

ABSTRACT: The effect of "weaving" a transverse arc on the structure and properties of TIG welds in steel sheets has been investigated. Beads were deposited on 42Kh2GSNM superstrength steel sheets with the arc weaving at a frequency of 0—8 oscillation per second and an amplitude of 0—8 mm. It was found that under certain conditions, weaving reduces the formation of columnar structure and dendritic nonuniformity in the weld metal, reduces the heat input in the weld-adjacent zone, increases the penetration, and improves the weld mechanical properties, especially ductility. The

Card 1/2 UDC: 621.791.75

ACC NR: AP7004194

properties of weld metal deposited without weaving were: tensile strength 173 kg/mm^2, elongation of 10.2%, and reduction of area 51%. Weaving with 3 oscillations per second at 3.5 mm amplitude increased the tensile strength to 187.0 kg/mm^2, the elongation to 11.5% and the reduction of area to 56.8%. The beneficial effect of weaving was observed also in other steels. For instance, the tensile strength of 56.9 kg/mm^2 and elongation of 38% of the Kh18N9 steel welds increased to 59.1 kg/mm^2 and 15.1% with weaving. Weaving has a beneficial effect only when it moves the melting pool and changes its form. Orig. art. has: 5 figures and 3 tables. [ND]

SUB CODE: 13, 11/ SUBM DATE: 10Jun66/ ORIG REF: 009/
ATD PRESS: 5116

Card 2/2

18.7200

~~25(1)~~

SOV/125-60-2-15/21

AUTHORS: Movchan, B.A. and Kushnirenko, B.N.

TITLE: The Welding of Austenite Steel With Independent Filler Wire

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 2, pp 89-91 (USSR)

ABSTRACT: Information is given on the results of experiments with automatic welding under flux, using the automatic double-arc "DTS-24" welder and powder metal filler wire. The welder was slightly altered to separate the second welding head from the welding current circuit, thus making it "independent" and melting by the heat at the metal pool. The filler wire was kept 5 to 12-mm from the arc at a 40 to 45° angle to the electrode (see drawing). The following problems were studied: 1) The influence of decreased superheating on the crystalline structure, and the tendency of high alloy compositions of the "Kh16N18" and "Kh16N24" types to

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The Welding of Austenite Steel With Independent Filler Wire

form cracks. The feeding of neutral wire (empty tube or powder wire filled with CaF_2) into the tail part of the pool improved the crystalline structure. The number of hot cracks (their total length) decreased by 40 to 60%. 2) The summary effect of cooling the welding pool and modifying with the aid of modifiers (cerium, zirconium, calcium). Cerium decreased the columnar structure and nearly completely eliminated hot cracks in "Kh16N18" steel. Zirconium gave somewhat worse results. 3) The summary effect of cooling the welds in austenitic high alloy steels with molybdenum and tungsten introduced into the "cold" part of the bath by means of a powder wire. It greatly influenced the crystalline structure, the crystal boundaries, and the tendency to form hot cracks. The critical content of molybdenum for "Kh16N18" and "Kh16N24" steel was found to be 1.4 to 1.6% and 2.3

The Welding of Austenite Steel With Independent Filler Wire

to 2.5%. The polygonization was completely suppressed, the columnar structure became much finer, and hot cracks were absent. Experiments were also conducted in which the simultaneous effect of cooling, modification and allyoing were checked. In this case, the powder wire was filled with ferromolybdenum with a small addition of cerium. The experiments gave quite satisfactory results. The results of the experiments make it possible to recommend the described welding method for improving the crystalline structure, and for diminishing the tendency of the weld metal to form hot cracks. There is 1 diagram. 4

Card 3/3

32958
S/[illegible]/[illegible]/[illegible]/[illegible]
D036/D113

1.2300 1573

AUTHORS: Kushnirenko, B. N.; Dzykovich, I. Ya.

TITLE: Some metallurgical methods of combatting hot cracking in welds on austenitic steels

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1962, 14-19

TEXT: Methods of preventing hot cracking in closed butt welds in nichrome austenitic steels of the 1X16H18T (1Kh16N18T), 1X16H24T (1Kh16N24T) and 1X18H9T (1Kh18N9T) types and in H1 (N1) commercial nickel, mainly by adding modifiers to the "cold" part of the welding pool are described. The experiments are a continuation of previous studies in which it was demonstrated that the distribution of crystal lattice imperfections could be controlled in cast high alloys. Welding was carried out with 1X18H9 (1Kh18N9) 5 mm welding wire and an AN-26 (AN-26) lowsilicon flux at 600-650 amp and 36-40 v, using reversed-polarity direct current and a ATS-24 (DTS-24) two-arc tractor fitted with a device for feeding the filler wire into the "cold" part of the welding pool (fig. 1). Conclusions: (1) Modifying and alloying the weld metal can best be achieved by introducing

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D036/D113

Some metallurgical methods of ...

additives in the form of powder or solid filler wire directly into the "cold" part of the welding pool; (2) When the welding pool is cooled by the filler wire, the crystal structure is improved, the size of the acicular crystals is reduced, the polygonization boundaries change, and the number of hot cracks is reduced by 40-60%, even without modifying agents; (3) Modification using cerium with simultaneous cooling of the welding pool, reduced the acicular structure and virtually eliminated hot cracking in welding 1Kh16N18T steel; (4) Molybdenum, introduced into welds in 1Kh16N18T and 1Kh16N24T type steels in the critical amounts of 1.6-1.9% and 2.3-2.5% respectively, and in the form of powder wire, suppressed the polygonization process, considerably refined the acicular structure and eliminated hot cracking. Tungsten in critical amounts of 2.6-3.2% had an almost similar effect; (5) A practical method was developed for eliminating cracking in the weld crater. The method uses a modified two-arc welder, and consists in continuing to feed a second wire with the molybdenum into the crater for a certain time after cessation of the feed of the first wire. In addition to these conclusions, it was also found that molybdenum and tungsten in the same amounts as given in (4) eliminated hot cracking in fillet and T-butt welds. The addition of 0.1% of cerium into

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Some metallurgical methods of ...

welds in N1 nickel also eliminated hot cracking, as it removed sulfur from the solid solution, resulted in the formation of fine primary inclusions of the second phase, and retarded the polygonization process. There are 6 figures and 5 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye. O. Paton of the AS UkrSSR)

SUBMITTED: March 29, 1961

Card 3/3

GOTAL'SKIY, Yu.N.; TSYKULENKO, A.K.; KUSHNIRENKO, B.N.

Welding pearlitic with austenitic steels in structures operating at high temperatures. Avtom. svar. 16 no.9:13-18 S '63. (MIRA 16:10)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.

S/0125/64/000/007/0090/0091

ACCESSION NR: AP4041864

AUTHOR: Mandel'berg, S. L.(Candidate of technical sciences); Kushnirenko, B. N. (Engineer)

TITLE: Determining the structural strength of welded joints of thin sheet high strength hardened steel

SOURCE: Avtomaticheskaya svarka, no. 7, 1964, 90-91

TOPIC TAGS: welded joint, strength, high strength steel, constructional strength, test method, welding defect, butt welding

ABSTRACT: A time-saving method was worked out for testing the strength of welded joints of high strength sheet steel, especially high carbon (0.45%) and alloyed (7-8%) steels. Flat test pieces prepared as in fig. 1 were subjected to negative temperatures to increase the sensitivity of the joints. The 1-6 mm thick samples were insulated with asbestos or cotton tape and cooled in a ligroin (gasoline, benzene)-dry ice bath to -78C and tested at -75 to -70C. A 3 mm sample thus insulated remains in this temperature range for 3 min, long enough for testing. In a series of test pieces and models butt welded by 3 different techniques tested by this method, most of the test pieces had a structural strength coefficient,

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ACCESSION NR: AP4041864

compared to the base metal, of less than one. This method brought out the effect of small defects in the joints on structural strength that standard tests do not show. This method is proposed for preliminary evaluation of structural strength; test models should be made for final evaluation. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 01

SUB CODE: MM NO REF SOV: 000 OTHER: 000

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ACCESSION NR: AP4041864 ENCLOSURE: 01

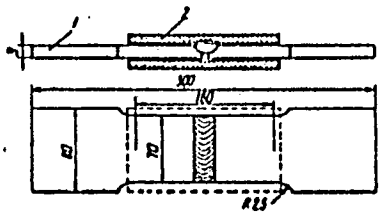

Fig. 1. Welded joint with an enlarged sectional view.
1--sample; 2--heat insulation

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[illegible], F. G. jt. au.

[illegible]V, TA. M.Experience in obtaining high yields of "Makhorka" tobacco
Moskva, Gos. izd-vo sel'khoz. lit-ry, 1950 (Mic 55-3467)
Collation of the original, as determined from the film:30p.
Opyt poluchen ia...1950. (Card 2, Mic 55-3467)

Microfilm Slavic 59 AC

16(1) 16.4100

AUTHOR: Kushnirenko, G.G.

SOV/155-58-4-8/34

TITLE: On the Approximation of Functions Defined on the Unit Sphere by Finite Spherical Sums (O priblizhenii funktsiy, zadannykh na yedinichnoy sfere, konechnymi sfericheskimi summami)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 4, pp 47 - 54 (USSR)

ABSTRACT: Let $f(\theta,\varphi)$ be continuous on the unit sphere; let

$\frac{1}{2\pi}\int_0^{2\pi} F(\gamma,\bar{\varphi})d\bar{\varphi}$ be the mean value of $f(\theta,\varphi)$ taken on the circle with the radius γ and the central point in (θ,φ), where γ and $\bar{\varphi}$ are new spherical coordinates of an arbitrary point (θ',φ'), if (θ,φ) is taken for the pole of the sphere and if it is $F(\gamma,\bar{\varphi}) = f(\theta',\varphi')$. Let the modulus of continuity

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On the Approximation of Functions Defined on the Unit Sphere by Finite Spherical Sums

SOV/155-58-4-8/34

$$\omega_f(h) = \sup_{\gamma \le h} \left| \frac{1}{2\pi} \int_0^{2\pi} F(\gamma, \bar{\varphi}) d\bar{\varphi} - f(\theta, \varphi) \right|$$

satisfy the condition $\omega_f(h) \le M \left(\sin \frac{h}{2}\right)^{\alpha}$, $\alpha > 0$.

Theorem: Under the preceding assumptions the error $\mathcal{E}_n(f)$ of the best approximation of $f(\theta, \varphi)$ by spherical sums of at most n-th order satisfies the inequality

$$\mathcal{E}_n(f) \le \frac{c(\alpha)M}{n^{\alpha}} .$$

Several further statements of similar kind are given. Altogether there are given 11 theorems.

S.N. Bernshteyn is mentioned in the paper. The author thanks Professor N.I. Akhiyezer for posing the problem and assistance.

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On the Approximation of Functions Defined on the Unit Sphere by Finite Sperical Sums SOV/155-58-4-8/34

There are 4 references, 2 of which are Soviet, 1 American, and 1 French.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnical Institute)

SUBMITTED: January 20, 1958

Card 3/3

29840
S/044/61/000/007/009/055
C111/C222

16.4100

AUTHOR: Kushnirenko, G.G.

TITLE: Some questions of the approximation of continuous functions on the unit sphere by finite spherical sums

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1961, 10, abstract 7 B 38 ("Tr. Khar'kovsk. politekhn. in-ta", 1959, 25, 3 - 22)

TEXT: The author considers the direct and the reverse problem of the approximation of continuous functions by finite spherical sums in the case where the differential properties of the functions are expressed with the aid of the Laplace operator. The results announced in an earlier paper of the author (R zh Mat, 1959, 10981) are proved in detail.

[Abstracter's note : Complete translation.]

Card 1/1

KUSHNIRENKO, G. I., Cand Phys-Math Sci -- (diss) "Concerning the best approximation of functions, given for a sphere, by spherical sums," Kharkov, 1960, 10 pp, 150 cop (Kharkov State U im A. M. Gorkiy) (KL, 43-60, 116-117)

KUSHNIRENKO, G.I.

Physical geography in the schoolyard. Geog. v shkole 20 no.3:46-47 My-Je '57. (MIRA 10:6)
(Physical geography--Study and teaching)

KUSHNIRENKO, G.Ye.

New type of clinometer. Geog. v shkole 20 no.5:56-59 S-O '57.
(MIRA 10:12)

(Clinometer)

KUSHNIRENKO, G.Ye.; BALABAN, M., red.

[Corn in Moldavia; bibliographical index of literature for the 25 years, 1838-1963] Kukuruza v Moldavii; bibliograficheskii ukazatel' literatury za 125 let (1838-1963 gg.). Kishinev, Kartia moldoveniaske, 1964. 219 p.
(MIRA 18:11)

L 14564-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(h) JD/HW

ACC NR: AP6002587 SOURCE CODE: UR/0286/65/000/023/0081/0081

INVENTOR: Gurevich, S. M.; Zamkov, V. N.; Zagrebenyuk, S. D.; Kushnirenko, I. A.

ORG: none

TITLE: Flux for welding light alloys such as titanium and its alloys. Class 49, No. 176789 [announced by the Electrical Welding Institute im.Ye. O. Paton AN UkrSSR (Institut electrosvarki AN UkrSSR)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 81

TOPIC TAGS: welding, submerged arc welding, light alloy welding, titanium welding, titanium alloy welding, welding flux

ABSTRACT: This Author Certificate introduces a flux for welding light alloys such as titanium and its alloys. To improve mechanical properties and reduce the oxygen content of weld metal, the flux is composed of 83—91% calcium fluoride, 1.5—2.5% sodium chloride, and 7—15% lithium fluoride. [ND]

SUB CODE: 13/ SUBM DATE: 25Jul64/ ATD PRESS: 4189

Card 1/1

L 22433-65 EEC(b)-2/EWT(1)/EWT(m)/EWP(b)/EWP(t) IJP(c) RM/JD

ACCESSION NR: AP5000630 S/0185/64/009/011/1248/1255

AUTHOR: Bilyy, M. U. (Belyy, M. U.); Kushnirenko, I. Ya.

TITLE: Effect of temperature on the luminescence and absorption spectra of heavy-metal salt solutions. IV. Studies on solutions of tellurium

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 9, no. 11, 1964, 1248-1255

TOPIC TAGS: luminescence spectrum, absorption spectrum, emission spectrum, tellurium salt, tellurium halide crystal

ABSTRACT: Many studies have been made of the optical properties of alkali halide crystals, as well as the corresponding solutions, activated with Tl^{+}, Ga^{+}, In^{+}, Sn^{+2}, Pb^{+2}, Bi^{+3}, Se^{+4}, Te^{+4} and other ions. Among the solutions of inorganic salts, detailed investigations have been made only of aqueous solutions of alkali halides with additions of Tl^{+}, Sn^{+2}, Pb^{+2}, since they luminesce even at room temperature. Upon cooling of these solutions to -183C the luminescence intensity increases by a factor of 10 - 12. This article presents experimental data on the spectroscopic properties of vitreous Hal-Te^{+4} solutions. It was established that tellurium chloride solutions begin to luminesce at -82C and HBr (LiBr) — Te solutions begin to luminesce at -150C. The luminescence spectra

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ACCESSION NR: AP5000630

of both types of solutions have a complex structure. Each luminescence band of chloride solutions has its own excitation function: the longer wavelength luminescence bands correspond to longer wavelength excitation. All absorption, emission and excitation bands are correlated with transitions of the type $^1S_0 \rightleftharpoons {}^1P_1$ and $^1S_0 \rightleftharpoons {}^3P_{0,\ 1,2}$ within the free Te^{+4} ion. However, the number of maxima in the excitation spectrum of HCl-Te is significantly greater than the number of maxima in the absorption spectrum. In addition, several luminescence bands are excited simultaneously in the single long-wavelength absorption band of HCl-Te solutions. An analysis of these results shows that some energy terms of the free Te^{+4} ion, $^3P_{2,1}$ and $^1P_1$ terms in particular, split in the area of a vitreous solution with respect to the quantum number J. The magnitude of splitting is a function of the charge on the activating ion. Lowering of temperature from room temperature to -183C has no significant effect on the absorption spectra of HCl-Te solutions, their bonds are somewhat narrowed and remain almost without change on the wavelength scale. The emission spectra in this case, however, are shifted toward the red spectral region. Some conclusions are drawn regarding such shifts. Orig. art. has: 4 figures

ASSOCIATION: Kyyivs'kyy derzhuniversytet im. T. G. Shevchenka (Kiev State Univ.)
SUBMITTED: 08May64 ENCL: 00 SUB CODE: SS, OP
NO REF SOV: 023 OTHER: 011
Card 2/2

L 25911-65 EWT(1)/EWT(m)/EWP(t)/EEC(b)-2/EWP(b) IJP(c) RDW/JD

ACCESSION NR: AP5001551 S/0185/64/009/012/1306/1311

AUTHOR: Bilyy, M. U.; Belyy, M. U.; Kushnirenko, I. Ya.

TITLE: Effect of temperature on the luminescence and absorption spectra of heavy metal salt solutions

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 9, no. 12, 1964, 1306-1311

TOPIC TAGS: absorption spectrum, heavy metal salt solution, hydrochloride selenium solution, lithium bromide selenium solution, luminescence spectrum

ABSTRACT: The absorption, emission, and excitation functions of vitreous alkaline-haloid solutions of HCl-Se and LiBr-Se were investigated. It was found that the absorption spectrum changes little with the decrease of temperature. The bands become narrower and are somewhat shifted toward the shorter wavelengths. The luminescence spectra change considerably: they are greatly shifted toward the violet when the temperature is changed from -123 to 176C. The structure of the luminescence spectra and the long-wavelength group of the absorption

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L 23911-65

ACCESSION NR: AP5001551

bands belong to a triplet system. They are assigned to the transitions of the $^1S_0 \rightleftharpoons {}^3P_{0,1,2}$ type of the free ion Se^{4+}. The intensive short-wavelengths absorption bands are assigned to the $^1S_0 \rightarrow {}^1P_1$ transitions. Orig. art. has: 3 figures

ASSOCIATION: Kyyivs'kyy derzhuniversytet im. T. G. Shevchenka (Kiev State University)

SUBMITTED: 08May64 ENCL: 00 SUB CODE: GP, GC, OP

NR REF SOV: 022 OTHER: 004

Card 2/2

ACCESSION NR: AR4032173 S/0058/64/000/002/D049/D049

SOURCE: Ref. zh. Fiz., Abs. 2D392

AUTHOR: Bely*y, M. U.; Kushnirenko, I. Ya.

TITLE: Luminescence and absorption of tellurium salts in concentrated aqueous solutions of HCl and LiCl

CITED SOURCE: Sb. Fiz. shchelochnogaloidn. kristallov. Riga, 1962, 164-167

TOPIC TAGS: tellurium, tellurium chloride solution, absorption spectrum, spectrum long wave displacement, luminescence, absorption maximum, luminescence band, level transition

TRANSLATION: The absorption spectrum of solutions of $TeCl_4$ + + HCl(LiCl) was investigated as a function of the concentration of the Cl^- ions. A long-wave displacement of the spectrum with increas-

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ACCESSION NR: AR4032173

ing concentration, and the appearance of three clearly pronounced absorption maxima at large Cl^- concentration at room temperature is established. At liquid-oxygen temperature (104°K) the maxima are more pronounced. The solutions do not luminesce at room temperature. At 104°, following excitation with a SVDSH-1000 lamp through a UFS-1 filter, a bright yellow-red glow is observed. The spectrum has four bands, the relative intensities of which depend on the wavelengths of the exciting light. Analysis shows that each absorption maximum corresponds to its own emission band, and the absorption maximum with the longest wavelength corresponds to two bands. The absorption and luminescence bands are related with the transitions between the Te^{4+} levels, deformed by the influence of the environment.

DATE ACQ: 31Mar64 SUB CODE: PH ENCL: 00

Card 2/2

L 15561-66 EWT(1) IJP(c)

ACC NR: AP6004411 SOURCE CODE: UR/0051/66/020/001/0101/0107

AUTHOR: Belyy, M. U.; Kushnirenko, I. Ya.

ORG: none

TITLE: Luminescence of vitreous halide solutions activated by ions of various valency

SOURCE: Optika i spektroskopiya, v. 20, no. 1, 1966, 101-107

TOPIC TAGS: halide optic material, emission spectrum, absorption spectrum, excitation spectrum, electron transition

ABSTRACT: The authors study the absorption, emission and excitation spectra of halide solutions activated by ions of heavy elements with outer shell nd^{10} $nd^{10}(n+1)s^2$, in particular Ge^{4+}, As^{5+}, As^{3+}, Se^{4+} and Te^{4+}, from room temperature to -183°C. Analysis of the results is used as a basis for assigning the absorption and luminescence bands (and consequently the excitation functions) of vitreous solutions of HCl(HBr)-As^{3+}, -Se^{4+} and -Te^{4+} to the transitions $^1S_0 \rightleftarrows {}^1P_1$ and $^1S_0 \rightleftarrows {}^3P_{0,1,2}$ within the heavy metal ion. Some physical relationships are experimentally established for the

Card 1/2 UDC: 535.37:539.213

L 15561-66

ACC NR: AP6004411

spectral characteristics of ions with similar outer shells (in particular it is found that splitting of some spectral levels occurs when the charge of the activator ion is increased, e.g. for solutions activated by Se^{4+} and Te^{4+}). It is shown that solutions activated by ions with a shell of the type nd^{10} have recombination luminescence with an excitation spectrum which does not coincide with the absorption spectrum for these solutions. A detailed analysis of this phenomenon is given. Orig. art. has: 2 figures, 4 formulas.

SUB CODE: 20/ SUBM DATE: 03Apr64/ ORIG REF: 024/ OTH REF: 002

Card 2/2

BELYY, M.U.; KUSHNIRENKO, I.Ya.

Luminescence of solutions of arsenic, gallium, and selenium halides. Izv. AN SSSR Ser. fiz. 27 no.5:661-665 My '63. (MIRA 16:6)

1. Kafedra optiki Kiyevskogo gosudarstvennogo universiteta imeni T.G. Shevchenko.

(Halides—Spectra)

L 44174-65 EWT(1) Pi-4 IJP(c)

ACCESSION NR:AP5009510 S/0048/65/029/003/0387/0390

20
19
8

AUTHOR: Belyy, M.U.; Kushnirenko, I.Ya.

TITLE: Spectroscopic properties of vitreous halide solutions activated by ions of different valence /Report, 12th Conference on Luminescence held in L'vov, 30 Jan-5 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 3, 1965, 387-390

TOPIC TAGS: luminescence, halide, vitreous material, recomination luminescence

ABSTRACT: Vitreous halide phosphors activated with mercury-like ions of high valence have been investigated because analogous crystal phosphors are difficult or impossible to synthesize. The use of vitreous solution phosphors makes it possible to investigate activation by ions with electron configurations nd^{10} and $nd^{10}(n+1)s^2$, and different charges. Absorption and emission spectra are presented for $HCl:As^{3+}$, $HCl:Se^{4+}$, $HCl:Te^{4+}$, $HBr:As^{5+}$, $HBr:Se^{4+}$, and $HBr:Te^{4+}$ at -142°C and for $HCl:Ce^{4+}$, $HCl:As^{5+}$, $HBr:Ce^{4+}$, and $HBr:As^{5+}$ at -150°C. These data and others are discussed. Features of the excitation spectra can be associated with the three ^3p states and the ^1p state of the activator ion. These states are split by

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L 44174-65
ACCESSION NR: AP5009510

the interaction with the surrounding medium, and the splitting is the greater, the greater the charge on the activator ion. The conclusion that the activator ions themselves are the nuclei of the absorption and emission centers is in contradiction with the views of O.A.Shmits and Yu.R.Zakis (Izv. AN SSSR Ser. fiz., 25,385 (1961)). A recombination mechanism is proposed for the luminescence of As^{5+} and Ge^{4+} activated vitreous halides and theoretical excitation spectra calculated by means of the formula of M.U.Belyy, B.A.Okhrimenko, and B.F.Rud'ko (Izv. AN SSSR, Ser. Fiz., 25, 426, 1961) are compared with the experimental spectra. Reasonably good agreement is shown. It is concluded that all the experimental data can be explained on the basis of the assumed recombination mechanism. Orig. art. has: 1 formula and 2 figures.

ASSOCIATION: Kafedra optiki Kiyevskogo gosudarstvennogo universiteta im. T.G. Shevchenko (Optics Department, Kiev State University)

SUBMITTED: 00 ENCL: 00 SUB CODE: OP, SS

NR REF SOV: 016 OTHER: 001

Card 2/2

BELYY, M.U. [Bilyi, M.U.]; KUSHNIRENKO, I. Ya.

Temperature effect on the luminescence and absorption spectra of solutions of heavy metal salts. Ukr. fiz. zhur. 9 no.11: 1248-1255 N '64 (MIRA 18:1)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko.

KUSHNIRENKO, M.D.

Water metabolism and the degree of drought resistance in some fruit trees. Fiziol. rast. 11 no. 3:487-495 '64.
(MIRA 17:7)

1. Institut fiziologii i biokhimii rasteniy AN Moldavskoy SSR, Tiraspol'.

KUSHNIRENKO, M. D.

"Metabolism and the State of the Protoplasm Colloids of Halophytes and Certain Cultured Glycophytes in Regard to Various Degrees of Soil Salinity." Thesis for degree of Cand. Biological Sci. Sub 26 May 50, Inst of Plant Physiology imeni K.A. Timiryazev, Acade Sci USSR

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950

KUSHNIRENKO, M. D.

Author: Kushnirenko, M.D.

Title: Adaptation of the cotton plant to soil salinity during the vegetative period.

Journal: Doklady Akademii Nauk SSSR, 1951, Vol.77, No.2, p. 337

Subject: Plant Physiology

From: D.S.I.R. Oct 57

KUSHNIRENKO, M.D.

Mentor method as an effective way of producing hybrid plants.
Biul.nauch.-tekh.inform.TSGL no.1:16-20 '56. (MIRA 12:1)
(Grafting)

KUSHNIRENKO, M.D.; DENISOV, V.F.

Accumulation of food reserves during the maturation of apple seeds as influenced by their place of formation in the tree crown. Biul.nauch.-tekh.inform.TSGL no.2:33-37 '56. (MIRA 12:1)

(Apple) (Seeds)

USSR / Cultivated Plants. Fruits, Berries, Nutbearing, Teas. M-6

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6425

Author : Kushnirenko, M. D.
Inst : Central Genetic Laboratory, Michurinsk
Title : The Importance of the Water Regime of the Stages of the Top of Apple and Pear Trees in the Formation of Hybrid Seedlings

Orig Pub : V sb.: Bibl.-osnovy oroshaem. zemled., M. AN USSR, 1957, 186-194

Abstract : 25 - 30 year old apple trees selected by I. S. Gorshkov and S. F. Chernenko, which are characterized by good frost resistance and a well defined multistage top, were taken as mentors at the Central Genetic Laboratory (Michurinsk). Scions of the aport

Card 1/2

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927830004-8

USSR / Cultivated Plants. Fruits, Berries, Nutbearing, Teas. M-6

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6425

anise apple variety were grafted on them, and scions of cultivated pear trees were grafted on the wild pear trees in the spring of 1953. The extension of the bud scales and the opening of buds started earlier on the lower stages of the top and on the grafting made on them. The increment of annual sprouts, water supply of sprouts and leaves, and transpiration intensity were greater in the lower stages of the top. The leaves of the upper stages of the mentor and of the grafts made on them were more xeromorphic. They were characterized by a greater suctorial power, greater osmotic pressure, drought resistance and suffered less from water scarcity. -- I. K. Fortunatov

Card 2/2

KUSHNIRENKO, M.D.

Anatomical and physiological characteristics of individual development in apple and pear trees. Biul. nauch.-tekh. inform. TSGL no. 3:20-25 '57. (MIRA 11:8)
(Apple)
(Pear)

USSR / Cultivated Plants. Fruit Trees. Small Fruit Plants. Nut Trees. Tea. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25050

Author : Kushnirenko, M. D.; Denisov, V. F.
Inst : Central Genetic Laboratory im. I. V. Michurin
Title : Concerning Various Qualities of the Fruits, Seeds and Vegetative Organs in the Apple and Pear Trees Depending Upon Their Location in the Crown of the Tree

Orig Pub : Byul. nauchno-tekhn. inform. Tsentr. genet. labor. im. I. V. Michurina, 1957, vyp 3, 38-44

Abstract : Accumulation of the solid substance in the tiers of the tree crown was investigated in connection with photosynthesis and their moisture content in the grafted apples, Pepin Chernenko, the Golden Early Chinese Maid and

Card 1/3

USSR / Cultivated Plants. Fruit Trees. Small Fruit Plants. Nut Trees. Tea. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25050

Fourth Pepin; in the pear, Thin-Twig, and in the own-rooted apple-tree, Little Star; in the hybrid seedlings, One-Half and One-Fifth; in the seedlings, Slavic Maid, Belfleur-Chinese Maid, and in the forest pear, Daughter of Flava. Quality of the fruits and seeds, to a considerable extent, was conditioned by characteristics of metabolism and water regime of the crown's tiers, on which they had been formed. In the shoots and leaves of the crown's upper tiers, there was more of sugar and of the solid substance than in the lower tiers; therefore, fruits and seeds in the upper tiers were of a considerably better quality. Selectioners, in their task,

Card 2/3

USSR / Cultivated Plants. Fruit Trees. Small Fruit Plants. Nut Trees. Tea. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25050

must take into consideration the places of the seeds' formation and the disposition of graftings in the tree's crown. -- E. V. Kolesnikov

Card 3/3

KUSHNIRENKO, M.D.

Winter hardiness of the apple and pear tree. Biul. nauch.-tekh. inform. TSGL no.4:24-29 '57. (MIRA 12:1)
(Apple) (Pear) (Plants--Frost resistance)

KUSHNIRENKO, M.D.

Winter transpiration in apple scions taken from different parts of the tree crown. Biul. nauch.-tekh. inform. TSGL no.4:53-58 '57. (MIRA 12:1)

(Plants--Transpiration) (Fruit trees)

IORANOV, P.; BREZHNEV, D.; OL'SHANSKIY, M.; LYSENKO, T.; LISAVENKO, M.; SINYAGIN, I.; YAKUSHKIN, I.; PREZENT, I.; VARUNTSYAN, I.; KOLESNIKOV, V.; YEVTUSHENKO, A.; ZASYADNIKOV, T.; ALISOV, M.; UTEKHIN, A.; GORSHKOV, I.; BELOKHONOV, I.; VIDENIN, K.; KARPOV, G.; CHERNENKO, S.; BAKHAREV, A.; TIKHONOVA, A.; KUZ'MIN, A.; BUZULIN, G.; TOLMACHEV, I.; LYSYUK, Ye.; KHARITONOVA, Ye.; KUSHNIRENKO, M.; NOVOPAVLOVSKAYA, N.; ZHIRONKIN, I.; KATSURA, O.; KIRYUKHIN, I.; NIKITIN, B.; TSVETAYEVA, Z.; ARKHIPOV, B.; OSTAPENKO, V.; IVANOV, V.; BUTUZOV, V.; LUTKOVA, I.; TSVETAYEVA, Z.; ARKHIPOV, B.; OSTAPENKO, V.; IVANOV, V.; BUTUZOV, V.; LUTKOVA, I.

P.N. IAkovlev; obituary. Agrobiologiia no.6:119 N-D '57. (MIRA 10:12)

(IAkovlev, Pavel Nikanorovich, 1898-1957)

KUSHNIRENKO, M.D., kand.biolog. nauk

Metamerism of the crown and growth of grafts taken from hybrid seedlings. Trudy TSGL 6:397-411 '57. (MIRA 12:10)
(Fruit culture)

Kushnirenko MD

KUSHNIRENKO, M.D., SHTIN, Ye.T.

Studying the mentor effect on the formation of hybrid seedlings as influenced by the position of the graft in the crown [with summary in English]. Fiziol. rast. 5 no.1:42-50 Ja-F '58. (MIRA 11:1)

1. TSentral'naya geneticheskaya laboratoriya im. I.V. Michurina, Michurinsk.

(Grafting) (Fruit trees)

KUSHNIRENKO, M.D., kand. biol.nauk

Physiological characteristics of different parts of the crown in apple and pear trees. Biul. nauch. inform. TSGL no.7/8:121-141 '59. (MIRA 13:1)

(Apple) (Pear)

KUSHNIRENKO, M.D., kand.biologicheskikh nauk

Studying the relation between the physiological processes in apple and pear graft and their location in the crown of the mentor plant. Trudy TSGL 7:197-208 '61. (MIRA 15:10)
(Grafting)

KUSHNIRENKO, M. D.

"Water status and drought resistance of fruit-trees."

report submitted for 10th Intl Botanical Cong, Edinburgh, 3-12 Aug 64.

AS MoldSSR, Kishinev.

KUSHNIRENKO, Margarita Danilovna; DRYAKHLOVA, V.I., *red.*

[Water balance and drought resistance of fruit plants] Vodnyi rezhim i zasukhoustoichivost' plodovykh rastenii. Kishinev, Shtiintsa, 1962. 47 p. (MIRA 18:5)

KUSHNIRENKO, M.D.; KRIUKOVA, Ye.V.

Changes in the suctorial power of apple, pear, plum and peach leaves depending upon the soil moisture. Izv.AN Mold.SSR no.4 47-52 '63. (MIRA 18:1)

MIKHAYLOV, M.V., kand. biol. nauk, otv. red.; KUSHNIRENKO, M.D., kand. biol. nauk, red.; DASHKEYEVA, K.N., kand. biol. nauk, red.; KIRILLOV, A.F., ml. nauchn. sotr., red.

[Problems in the physiology of frost and drought resistance of fruit trees and grapes] Voprosy fiziologii zimostoikosti i zasukhoustoichivosti plodovykh i vinograda. Kishinev, Kartia molodoveniaske, 1965. 117 p. (MIRA 18:11)

1. Akademiya nauk Moldavskoy SSR. Institut fiziologii i biokhimii rastenii.

L 10635-63 EWP(k)/EWP(q)/EWT(d)/EWT(m)/BDS--AFFTC/ASD--Pf-4--JD/HM

ACCESSION NR: AP3002317 S/0125/63/000/006/0036/0040 64 62

AUTHOR: Kirdo, I. V.; Kharchenko, G. K.; Kushnirenko, N. A.

TITLE: Radio-frequency induction welding of longitudinal joints of titanium tubes

SOURCE: Avtomaticheskaya svarka, no. 6, 1963, 36-40

TOPIC TAGS: titanium tubing, welding, induction radio frequency, argon shielding, weld, microstructure, tensile strength, yield strength, elongation, area reduction, hardness, mechanical property, annealing, heat treatment

ABSTRACT: The radio-frequency induction welding of titanium tubes has been investigated. Commercial-grade titanium strips 2 mm thick were formed into tubes 32 mm in diameter and 3 m long and were induction-welded at a frequency of 440 kc at a speed of 28-30 m/sec. Argon shielding was used on both sides of the joint since welding in air produced low-quality welds. It was found that in welding titanium tubes the edges should converge at a larger angle than in welding steel pipes. A spacer 6 mm thick located close to the inductor ensures a steady position of the contact point with a sufficiently narrow heating zone. For a satisfactory weld, slight fusion of the edges should occur before they

Card 1/2

contact each other, and the edges should be pressed together with considerable plastic deformation to obtain the same reinforcement on both sides. The inside and outside flash can be machined off. Argon consumption of about 10 l/min is sufficient, since the metal remains liquid for only about 0.1 sec. Microscopic examination revealed no defects in the weld. It has a recrystallized α-Ti microstructure with grains somewhat larger than those of the parent metal. The weld metal had the same mechanical properties as the parent metal: a tensile strength of 47.0—47.6 kg/mm^2, yield strength of 40.0—42.6 kg/mm^2, elongation of 14.6—15.0%, and reduction of area of 61.9—66.1%. Annealing for 1 hr at 650—700C reduced the weld metal hardness from 227 HV to that of the parent metal, about 175 HV. "Candidate of Technical Sciences S. M. Gurevich participated in the development of the welding technique." Orig. art. has: 1 table and 5 figures.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN USSR (Electric Welding Institute, AN USSR)

SUBMITTED: 19Jan63 DATE ACQ: 12Jul63 ENCL: 00

SUB CODE: ML NO REF SOV: 002 OTHER: 000

GUREVICH, S.M.; KUSHNIRENKO, N.A.

Characteristics of the structure and properties of welded joints in the VT14 titanium alloy. Avtom.svar. 17 no.1:34-38 Ja '64. (MIRA 17:3)

1. Institut elektrosvarki imeni Patona AN UkrSSR.

ACCESSION NR: AP4029260 S/0125/64/000/004/0093/0094

AUTHOR: Gurevich, S. M. (Doctor of technical sciences); Zamkov, V. N. (Engineer); Zagrebenyuk, S. D. (Engineer); Kushnirenko, N. A. (Engineer)

TITLE: Effect of rare-earth-bearing fluxes on the structure and characteristics of VT15-alloy welds

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 93-94

TOPIC TAGS: welding, titanium alloy, titanium alloy welding, welding flux, lanthanum fluoride flux, AN-T7 flux, VT17 welding wire, VT15 titanium alloy

ABSTRACT: It was found that lanthanum fluoride, as a part of the welding flux, is conducive to good weld formation, welding-process stability, slag-crust separation, etc. in welding important constructions made from titanium alloys. Experiments were conducted with fluxes that contained various proportions of LaF_3; AN-T7 refractory fused flux was taken as a basis. The oxygen content in a weld made by

Card 1/2

ACCESSION NR: AP4029260

VT17 wire (VT15 base metal) was 0.17% and 0.10% with 0 and 40% LaF_3 in the flux, respectively. A weld obtained with an optimum content of LaF_3 also showed superior mechanical characteristics (table given). Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 27Apr64	ENCL: 00
SUB CODE: ML	NO REF SOV: 000	OTHER: 000

Card 2/2

L 2100-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) LJP(c) MJW/JD
ACC NR: AP5023076 SOURCE CODE: UR/0125/65/000/009/0001/0004

AUTHOR: Gurevich, S. M. (Doctor of technical sciences); Zamkov, V. N. (Engineer); Kushnirenko, N. A. (Engineer)

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut electrosvarki AN UkrSSR)

TITLE: Increasing the depth of penetration in argon-shielded arc welding of titanium alloys

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 1-4

TOPIC TAGS: titanium alloy, alloy welding, TIG welding, inert gas welding, welding flux, oxygen free flux/VT15 alloy, OT4 alloy, ANT9A welding flux

ABSTRACT: Experiments have been made to determine the effect of oxygen-free fluxes on the penetration characteristics in TIG welding of titanium alloys. On the basis of the preliminary results, a complex alkali metal salt base flux AN-T9A was developed for use in argon-shielded arc welding of titanium alloys. With this flux, 6 or 3.5 mm thick VT14 alloy plates were welded in one pass with respective currents of 220 and 100 amp. Generally, the use of AN-T9A flux makes it possible to reduce the welding current for 3.5-mm thick VT15 and 4- and 6-mm thick OT4 alloys from 240, 320, and 310 to 100, 140, and 220 amp, respectively. The flux also cuts the heat input by about 60% and greatly decreases the weld width-to-height ratio (from about

Card 1/2 UDC: 621.791.856:546.821.

L 2100-66

ACC NR: AP[illegible]3076

5.3 to 1). The structure of weld metal produced by TIG welding with AN-T9A flux is close to that produced by electron-beam welding. The VT15 alloy weld metal deposited with an AN-T9A flux had a tensile strength of 92.1 kg/mm^2 and a notch toughness of 5.8 kgm/cm^2. The corresponding figures for joints electron-beam welded and argon-shielded arc welded without the flux were 93.0 and 92.0 kg/mm^2 and 6.3 and 3.7 kg/cm^2, respectively. A similar beneficial effect of the flux on the geometry was observed in welding of niobium, molybdenum, and austenitic steels. For these metals, however, special fluxes have to be developed. Orig. art. has: 3 figures and 2 tables. [MS]

SUB CODE: MM, IE/ SUBM DATE: 08Feb65/ ORIG REF: 008/ OTH REF: 002/
ATD PRESS: 4/213

Card 2/2

L 22350-66 EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EAP(k) IJP(c) JD/HM/GS
ACC NR: AT6012406 SOURCE CODE: UR/0000/65/000/000/0301/0304

AUTHOR: Gurevich, S. M.; Kushnirenko, N. A.; Blashchuk, V. Ye.

ORG: none

TITLE: Methods of obtaining high-strength titanium welds without postwelding strengthening heat treatment

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th, Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 301-304

TOPIC TAGS: titanium alloy, heat treatable alloy, high strength alloy, alloy welding, alloy weld, weld property

ABSTRACT: The possibility of obtaining high-strength welds in titanium alloys without postwelding heat treatment has been investigated. It was found that submerged arc welding of single-phase α-alloys of the Ti-Al-Sn-V-Zr-Fe system with an electrode of the same composition yields welds whose strength and ductility are almost equal to these of the base metal (weld tensile strength 118.4 kg/mm^2 and elongation 7.5%, versus 121.2 kg/mm^2 and 10.5% for the base metal). Welds in two-phase titanium alloys, such as VT14, made with electrode wire of the same composition have a tensile strength of 100 kg/mm^2, which can be raised by heat treatment up to 120 kg/mm^2 (the strength of heat-treated base metal). In this case, however, the

Card 1/2

L 22350-66

ACC NR: AT6012406

weld ductility drops sharply. Better results are obtained when alloy parts are annealed and quenched prior to welding, welded, and then aged. The weld thus obtained has a strength equal to that of the base metal. AT3SV electrode wire (3.1% aluminum, 1.5% molybdenum, 1.1% vanadium, 1.0% iron, 0.5%—1.0% zirconium) yielded welds, without any p- welding heat treatment, which had a tensile strength of 115.3—120 kg/mm^2, an elongation 7.3—9.9%, a reduction of area of 17.5, and a notch toughness of 3.16—3.6 mkg/cm^2. Orig. art. has: 4 figures and 2 tables. [ND]

SUB CODE: 13, 11/ SUBM DATE: 02Dec65/ ATD PRESS: 4242

Card 2/2 dda

L 25792-66 EWT(m) IJP(c)

ACC NR: AP6016376 SOURCE CODE: UR/0089/65/019/006/0498/0502

AUTHOR: Budker, G. I.; Kushnirenko, N. A.; Naumov, A. A.; Onuchin, A. P.; Popov, S. G.; Sidorov, V. A.; Skrinskiy, A. N.; Tumaykin, G. M. 40 B

ORG: none

TITLE: Status report on the VEP-1 electron storage ring

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 498-502

TOPIC TAGS: electron scattering, synchrotron, electron energy/B-25 synchrotron

ABSTRACT: This paper updates the report given at the International Conference on Accelerators held in Dubna in 1963 and describes the work carried out since that time. In the last two years the following work has been accomplished: accumulation of electrons simultaneously on two paths, study of certain interaction effects between two beams, and measurement of the luminance of the machine from the electron-electron scattering in the range of angles from 45 to 90 deg. The VEP-1 storage ring, designed to operate at electron-electron energy of 2 X 130 Mev, is connected to a B-25 synchrotron, as shown in a schematic diagram. The magnetic paths are 43 cm in dia and the aperture is 3 X 4 cm. All experiments were made at electron energies of 43 Mev and resonator voltage of 5 kv. The average injection current pulse did not exceed 10 ma, although more than 100 ma were available. Injection mode stability left much to be desired. Results of the experiments are shown in a series of graphs. Further experiments are planned at electron energies of 100 Mev. Orig. art. has: 8 figures.

SUB CODE: 20 / SUBM DATE: none / ORIG REF: 005 [JPRS]

Card 1/1 CC

L 43945-66 EWT(m)/EWP(t)/T/EWP(v)/EWP(t)/ETI IJP(c) JD/HW/JG

ACC NR: AP6027436 SOURCE CODE: UR/0125/66/000/007/0077/0078

AUTHOR: Sidlyarenko, V. A.; Kushnirenko, N. A.; Levandovskaya, S. A. 40 B

ORG: none

TITLE: Revealing the microstructure of Ti-30% Mo alloy welds

SOURCE: Avtomaticheskaya svarka, no. 7, 1966, 77-78

TOPIC TAGS: titanium alloy, molybdenum containing alloy, ~~alloy~~ metal weld, ~~alloy~~ weld ~~etching~~ evaluation

ABSTRACT: Since the usual etching methods do not produce satisfactory results in the case of Ti alloy containing 30% Mo, a new etching method has been developed at the Electric Welding Institute im. Ye. O. Paton. Mechanically polished samples are electrolytically polished in a solution consisting of 80 cm^3 perchloric acid and 920 cm^3 acetic acid. For improving the surface quality and accelerating the preparation process, the electrolytic polishing can be combined with etching in a 1:1:1 solution of concentrated hydrofluoric, nitric, and sulfuric acids. The final stage is electrolytic etching in 20% oxalic acid followed, if necessary, by brightening in a mixture of hydrofluoric, nitric and sulfuric acids. Orig. art. has: 1 figure. [WW]

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 5060

Card 1/1 hs UDC: 621.791:669.295:621.794.4

L 4802-66 EWT(m)/EWT(w)/EWT(v)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HM

ACC NR: AP6030268 (A) SOURCE CODE: UR/0125/66/000/008/0018/0021

AUTHOR: Gurevich, S. M.; Grabin, V. F.; Zamkov, V. N.; Kushnirenko, N. A.

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Some causes of the low ductility in heat-treated VT-15 alloy welds

SOURCE: Avtomaticheskaya svarka, no. 8, 1966, 18-21

TOPIC TAGS: titanium alloy, titanium alloy welding, titanium alloy weld, weld ductility, alloy weld heat treatment, TiC_1 welding, electron beam welding, submerged arc welding/VT15 titanium alloy

ABSTRACT: The causes of low ductility in VT15 titanium alloy welds annealed and quenched after welding at 800—900C have been investigated. Alloy sheets 3.5 mm thick were joined either by submerged arc welding with ANT-7 flux, TIG welding with or without ANT-15A flux (in both cases without filler wire), or by electron beam welding. It was found that only in welds made with submerged arc did water quenching from 800—900C increase the weld impact toughness and bend angle from 1.1 mkg/cm^2 and 7° in the as-welded condition to 1.5—3.3 mkg/cm^2 and 40—73° after annealing. In all the other welds (which in general had better ductility than submerged-arc welds), annealing and quenching lowered both the notch toughness and bend angle: in TIG welds from 3.85 mkg/cm^2 and 160° to 2.8—3.0 mkg/cm^2 and 135—145°; TIG flux welds

Card 1/2 UDC: 621.791.011:669.295

L 43827-66

ACC NR: AP6030268

from 5.6 mkg/cm^2 and 180° to 3.9—5.0 mkg/cm^2 and 150—160°; and in electron-beam welds from 7.8 mkg/cm^2 and 180° to 5.5—6.0 mkg/cm^2 and 150—165°. The drop of ductility was attributed primarily to the precipitation of $TiCr_2$ at weld grain boundaries. It was concluded that VT15 welds should be aged without prior annealing. Electron-beam welds aged after annealing had a tensile strength of 114 kg/mm^2, a notch toughness of 1.6 mkg/cm^2, and a bend angle of 7—10°. Corresponding figures for welds used without annealing were 123.2 kg/mm^2, 2.1 mkg/cm^2, and 20—25°. Orig. art. has: 3 figures and 3 tables. [ND]

SUB CODE: 13/ SUBM DATE: 07Sep65/ ORIG REF: 004/ OTH REF: 005/ ATD PRESS: 5072

Card 2/2 fv

L 00960-67 EWT(m)/EWP(v)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6011439 SOURCE CODE: UR/0125/65/000/012/0040/0045

AUTHORS: Grabin, V. F.; Dzykovich, I. Ya.; Kushnirenko, N. A.; Zamkov, V. N.

ORG: Institute for Electro-Welding imeni Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: The formation of $TiCr_2$ in welded joints of titanium alloy containing the unstable β-phase

SOURCE: Avtomaticheskaya svarka, no. 12, 1965, 40-45

TOPIC TAGS: titanium alloy, chromium containing alloy, molybdenum containing alloy, aluminum containing alloy, welding technology, welding inspection, seam welding / VT15 titanium alloy

ABSTRACT: The formation, distribution, and effect on the weld properties of $TiCr_2$ formed during welding of alloy VT15 was investigated. The investigation was carried out by metallographic and electron microscope techniques. The distribution of α- and β-phase stabilizing alloying elements was also studied. This study was carried out with the aid of microsonde "Kameka" as described by R. Castaing (Application des sondes électroniques à une methode d'analyse ponctuelle chimique et cristallographique, Thesis, Univ. Paris, ONERA, Publ. N. 55, 1951). The experimental results are summarized in graphs and tables (see Fig. 1). It was established

Card 1/3 UDC: 621.791.7:546.821

Fig. 1. Metal structure in the seam after isothermal annealing up to 670C for different time periods (x 250). a - 24 hours; b - 1500 hours, electropolished; c - 1500 hours, etched.

that $TiCr_2$ is indeed present in welding seams of alloy VT15. To insure high impact strength of the seam, the latter must be quenched from a higher temperature than the base metal. The separation of $TiCr_2$ along grain boundaries is accompanied by a

ACC NR: AP6014439

redistribution of the alloying elements--chromium, molybdenum, and aluminum. Orig. art. has: 3 tables and 6 graphs.

SUB CODE: 11/ 13/ SUBM DATE: 09Mar65/ ORIG REF: 004/ OTH REF: 009

Card 3/3

ACC NR: AP7001458 (A) SOURCE CODE: UR/0413/66/000/021/0202/0202

INVENTOR: Kulikov, F. R.; Gurevich, S. M.; Anoshkin, N. F.; Moroznikova, S. V.; Blashchuk, V. Ye.; Kushnirenko, N. A.; Persidskiy, A. S.

ORG: none

TITLE: Electrode wire for titanium-alloy welding. Class 49, No. 188277

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 202

TOPIC TAGS: electrode wire, titanium alloy, titanium alloy welding

ABSTRACT: This Author Certificate introduces a titanium-base electrode wire which contains 3.5—4.5% aluminum and 2.0—3.0% vanadium, with 1.4—1.6% zirconium added to improve the weld ductility. [ND]

SUB CODE: 13, 11/ SUBM DATE: 28Jul65/ ATD PRESS: 5110

Card 1/1 UDC: 621.791.042.2

ACC NR: AP7001459 (A) SOURCE CODE: UR/0413/66/000/021/0203/0203

INVENTOR: Gurevich, S. M.; Blashchuk, V. Ye.; Kulikov, F. R.; Persidskiy, A. S.; Kushnirenko, N. A.; Anoshkin, N. F.; Moroznikova, S. V.

ORG: none

TITLE: Electrode wire for welding titanium alloys. Class 49, No. 188278

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 203

TOPIC TAGS: titanium alloy, ~~titanium alloy~~ metal welding, ~~titanium alloy~~ electrode ~~wire~~

ABSTRACT: This Author Certificate introduces a titanium alloy electrode wire which contains aluminum, iron, chromium, silicon, and boron. To increase the strength and ductility of welds in alloy sections up to 25 mm thick, the wire contains 1.4—1.6% zirconium while the content of other components is set as follows: 1.8—2.0% aluminum, 2.5—2.7% iron, 0.2—0.4% chromium, 0.1—0.15% silicon, and 0.05% boron. [ND]

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Card 1/1 UDC: 621.791.042.2

NASUSHKIN, A.I.; KUSHNIRENKO, S.T.

Results of experiments on growing corn with least labor expenditures.
Mekh. sil'. hosp. 9 no.2:4-6 F '58. (MIRA 11:3)

1.Ministerstvo sil's'kogo gospodarstva URSR.
(Corn (Maize))

KUSHNIRENKO, S.T., inzh.-mekhanik

Repair and adjustment of fuel systems in DT-24 and DT-14 tractors. Mekh.sil'.hosp. 9 no.12:15-17 D '58. (MIRA 12:1)

(Tractors--Fuel systems)

TYULIN, A.F.; KUSHNIRENKO, S.V.; SHCHERBINA, K.G.

Mineral nutrition of oak and associated vegetation on the dark-gray forest soils. Pochvovedenie '53, No.3, 19-28. (MLRA 6:3)
(CA 47 no.21:11631 '53)

1. Inst. Forestry, Acad. Sci. U.S.S.R., Moscow.

KUSHNIRENKO, S.V.

Physiological characteristics of tomatoes and corn made frost-hardy through exposure to variable temperatures [with summary in English]. Fiziol. rast. 5 no.3:235-244 My-Je '58. (MIRA 11:6)

1. Institut fiziologii rasteniy im. K.A. Timiryazeva Akademii nauk SSSR, Moskva.

(Corn (Maize))
(Tomatoes)
(Plants--Frost resistance)

GENKEL', Pavel Aleksandrovich; KUSHNIRENKO, Svetlana Vasil'yevna; STAROSTENKOVA, M.M., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Frost resistance of cultivated plants and ways of increasing it] Kholodoustoichivost' kul'turnykh rastenii i puti ee povysheniia. Moskva, Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8. Biologiia i meditsina, no.16) (MIRA 12:9)
(Plants--Frost resistance)

GENKEL', P.A.; KUSHNIRENKO, S.V.

Photosynthesis in tomato plants hardened against cold by subjection of seeds to variable temperatures. Fiziol. rast. 6 no.4:446-450 Jl-Ag '59. (MIRA 12:10)

1.K. A. Timiriazev Institute Plant Physiology, U.S.S.R. Academy of Sciences, Moscow.
(Tomatoes) (Plants--Frost resistance)
(Photosynthesis)

KUSHNIRENKO, S.V.

Unproductive respiration of leaves and the resistance of thermophylic plants to the cooling of the root system. Fiziol.rast. 8 no.3:345-354 '61. (MIRA 14:5)

1. Institut fiziologii rasteniy im. K.A.Timiryazeva Akademii nauk SSSR, Moskva.
(Plants--Respiration) (Plants--Frost resistance) (Cucumbers)

ZHOLKEVICH, V.N.; KHOLLER, V.A.; KUSHNIRENKO, S.V.

Aftereffect of cooling on the effectiveness of respiration of cucumber leaves. Fiziol. rast. 9 no.3:353-358 '62. (MIRA 15:11)

1. K.A.Timiriazev Institute of Plant Physiology, U.S.S.R. Academy of Sciences, Moscow and Department of General Chemistry, Moscow State University.

(Plants--Respiration)
(Plants, Effect of temperature on)

YUSHKIREVICH, S. V.

Dissertations defended at the Institute of Plant Physiology imeni K. A. Timiryazev for the academic degree of Candidate of Biological Sciences:

"After-Effect of the Intermittent Chilling of Seed (Hardening Toward Cold) on Several Physiological Characteristics of Plants."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145

KUSHNIRENKO, S.V.; MOROZOVA, R.S.

Effect of low temperatures above freezing point on the structure of plastids in cold-adapted cucumbers. Bot. zhur. 48 no.5:720-724 My '63. (MIRA 17:1)

1. Institut fiziologii rasteniy imeni K.A. Timiryazeva AN SSSR, Moskva.

KUSHNIRENKO, V.I.

Cough in appendicitis. Sovet. med. No.1:33 Jan 52. (CIML 21:4)

1. Of the Surgical Division of Glusk Rayon Hospital, Belorussian SSR.

[redacted], V. I. --

"The Use of Penicillin in Combination With Novocaine Anesthesia as a Prophylactic Procedure in Wound Infections." Chief Med Sel, Ulan-Ude State Medical Inst, 11 Nov 54. (KL, Protokol 5)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 681, 5 May 55

BUDAGOV, Yu.A.; YERMOLOV, P.F.; KUSHNIRENKO, Ye.A.; MOSKALEV, V.I.

Excitation of the He^4 nucleus by 150 Mev. π^--mesons. Zhur. eksp. i teor. fiz. 40 no.6:1615-1617 Je '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons) (Helium)

BUDAGOV, Yu.A.; YERMOLOV, P.F.; KUSHNIRENKO, Ye.A.; MOSKALEV, V.I.; SARANTSEVA, V.R., tekhn. red.

[Interaction of 153 Mev. negative π-mesons and helium]
Vzaimodeistvie otritsatel'nykh π-mezonov s geliem pri energii 153 Mev. Dubna, Ob"edinennyi in-t iadernykh issl., 1962. 32 p. (MIRA 15:3)
(Nuclear reactions) (Mesons) (Helium)

34640
S/056/62/042/002/022/059
B108/B104

26.2212
24.6200

AUTHORS: Dzhelepov, V. P., Yermolov, P. F., Kushnirenko, Ye. A., Moskalev, V. I., Gershteyn, S. S.

TITLE: Experimental study of μ^--mesoatomic processes in hydrogen gas

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 439 - 449

TEXT: The experimental study of the capture of a negative meson by a proton $\mu^- + p \rightarrow n + \bar{\nu}$ can give important information on weak interactions. The probability of this process depends on the spin state of the hyperfine structure of the hydrogen muomic atom as well as on the mesomolecule production probability $\lambda_{pp\mu}$. The authors give results of experiments conducted at the OIYaI (see Association entry) synchrocyclotron with a diffusion chamber containing technically pure hydrogen and placed in a constant magnetic field of 7200 oe. The method of investigation is based on the fact that the neutral $p\mu$ mesic atom after its formation covers a certain distance

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Experimental study of ...

before the decay of the μ-meson. The principal difficulty is the presence of C and O nuclei the protons of which may transfer μ-mesons. At a hydrogen pressure of 22.7 at, the cross section σ_{pp} of elastic scattering of $p\mu$ mesic atoms from protons is $(1.7^{+0.4}_{-0.5}) \cdot 10^{-19}$ cm^2. The probabilities of μ-meson transfer from protons to deuterons, λ_d, and to complex nuclei (C and O), λ_z, as extrapolated to the density of liquid hydrogen are $(0.95^{+0.54}_{-0.2}) \cdot 10^{10}$ sec^{-1} and $(1.2^{+0.8}_{-0.5}) \cdot 10^{10}$ sec^{-1}, respectively. The production probability $\lambda_{pp\mu}$ in liquid hydrogen is $(0.6^{+0.8}_{-0.5}) \cdot 10^6$ sec^{-1}. The λ values agree well with theory. σ_{pp} is near the theoretical value calculated without considering the hyperfine structure of the $p\mu$ mesic atom. At present experiments are carried on in order to improve the experimental values of the above quantities, in particular of $\lambda_{pp\mu}$. The authors thank Ya. B. Zel'dovich for discussions as well as T. N. Tomilina, Ye. I. Rozanov, Ye. M. Kuchinskiy, A. V. Brzhestovskaya, N. P. Vasilistov, Ye. A. Kurshevskaya, L. Krasnoslobodtseva, T. Sazhneva, and Yu. Saykina for help. There are 4

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Experimental study of ...

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B108/B104

figures, 1 table, and 18 references: 9 Soviet and 9 non-Soviet. The four most recent references to English-language publications read as follows: H. Primakoff, Rev. Mod. Phys., 31, 802, 1959. S. Weinberg, Phys. Rev. Lett., 4, 575, 1960. L. Wolfenstein, V. L. Telegdi, Proc. of the 1960 Ann. Intern. Conf. on High Energy Physics at Rochester, Publ. Univ. Rochester, 1961, pp. 589, 713; Ta-Yon Wu et al., Nucl. Phys., 16, 432, 1960; J. G. Petkovich et al., Phys. Rev. Lett., 4, 570, 1960; M. Shiff, Preprint EFINS - 61-33, Report 351, June, 1961.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: October 26, 1961

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37865
S/056/62/042/005/009/050
B104/B102

AUTHORS: Budagov, Yu. A., Yermolov, P. F., Kushnirenko, Ye. A., Moskalev, V. I.

TITLE: Interaction between 153-Mev π^--mesons and helium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 5, 1962, 1191-1208

TEXT: The interaction between 153-Mev π^--mesons and He^4 at 17.6 atm helium pressure and a magnetic field strength of 12,000 oersteds was studied in a diffusion chamber. The maximum drop of the magnetic field strength in the central range of the operating volume was 3%, the maximum nonuniformity of the magnetic field was $\pm 4\%$. The mean meson energy was determined from the curvature of the meson tracks. The half-width of the meson energy distribution in the chamber was 9 Mev. The μ^- and electron admixture was $(16 \pm 2)\%$. The total π^- He interaction cross section, the elastic scattering cross section, and the cross sections for a number of inelastic processes were determined by measuring the total length of π^--meson tracks in the chamber. The angular distribution of elastic π^- He

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interaction is of diffractional nature with a distinct first minimum (at 80°) and a second maximum (at 100°). Calculations of elastic scattering on the basis of an optical model with square complex potential, $V = V_R + iV_I$, showed that best agreement with experimental data was obtained with $V_R = -18 \pm 7$ Mev, $V_I = -63 \pm 6$ Mev, $r_o = 1.5 \cdot 10^{-13}$ cm. These values agree with those found by R. M. Frank et al. (Phys. Rev., 101, 891, 1956). The angular distribution of π^--mesons quasi-elastically scattered from intranuclear nucleons is compared with theoretical results of K. M. Watson et al. (Nuovo Cim., 10, 453, 1958). The probability of multiple pion scattering from nuclei and the charge exchange scattering cross section are estimated. The cross section of inelastic scattering with charge exchange is about 10% of the cross section of inelastic interaction. There are 8 figures and 4 tables.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: December 29, 1961

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L 44304-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10 IJP(c) GS

ACCESSION NR: AT5007921 S/0000/64/000/000/0274/0287

AUTHOR: Bayyer, V. N.; Blinov, G. A.; Bondarenko, L. N.; Yerozolimskiy, B. G.; Koroboynikov, L. S.; Mironov, Ye. S.; Naumov, A. A.; Onuchin, A. P.; Panasyuk, V. S.; Popov, S. G.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinskiy, A. N.; Khabakhpashev, A. G.; Auslender, V. L.; Kiselev, A. V.; Kushnirenko, Ye. A.; Livshits, A. A.; Rodionov, S. N.; Synakh, V. S.; Yudin, L. I.; Abramyan, Ye. A.; Vasserman, S. B.; Vecheslavov, V. V.; Dimov, G. I.; Papadichev, V. A.; Protopopov, I. Ya.; Budker, G. I.

TITLE: Colliding electron-electron, positron-electron, and proton-proton beams

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 274-287

TOPIC TAGS: high energy interaction, high energy plasma, particle physics, particle beam, charged particle beam

ABSTRACT: In the Institute of Nuclear Physics, Siberian Department, Academy of Sciences SSSR, programs on high-energy particle physics are mainly concerned with work on colliding charged particle beams. The Institute considers it unsuitable

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for its purpose to install huge accelerators whose construction requires large resources outlaid and long time. For work on colliding electron-electron, positron-electron, and proton-proton beams, three installations are being built, which are in various stages of readiness. Work on colliding electron beams was conducted at the institute (then a laboratory of the Institute of Atomic Energy imeni I. V. Kurchatov) in the Fall of 1956, after Kerst's report on accelerators with colliding proton beams of the FFAG type. By that time Soviet scientists had already acquired some experience in obtaining large electron currents; in particular, the mentioned laboratory had installed and then abandoned a device for the spiral storage of electrons (G. I. Budker and A. A. Naumov, CERN Symposium, 1, 76 (1956)), by which, subsequently, circulating currents of the order of 100 amperes were obtained. In 1957 two variants of this device were considered at the same time. The first one consisted of two accelerators with spiral storage and subsequent transition of the particles to synchrotron state in comparatively narrow paths. The second one had storage rings with constant magnetic field and frequent external injection because of the damping of the oscillations under the action of radiation. The first variant was more cumbersome; the second variant contained an element not developed at that time, namely a 100-kilovolt commutator of 10 kilo-amperes with nanosecond front. At the end of 1957, the first positive results were obtained

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with a packing discharger of 100 kilovolts, and work stopped on the variant with storage rings. Originally it was proposed to set up two devices: VEP-1 of 2 × 130 Mev energy, and VEP-2 of 2 × 500 Mev energy. The VEP-1 was considered as an actual model of an accelerator and as a device for conducting initial experiments at low energies. After the Panofsky report in 1958 on his work with colliding electron beams conducted in his laboratory at Stanford, construction ceased on 500-Mev storage paths and work was continued on the 2 × 130-Mev installation. Instead of work on colliding electron beams with energies of 500 Mev, work at the end of 1958 was conducted with colliding positron-electron beams and the planning of the VEPP-2 device was begun, whose main elements are a strong-current electron accelerator and a high-vacuum storage path of 700 Mev energy. At the present time the VEP-1 and VEPP-2 are installed in Novosibirsk. The VEP-1 is in a state of neglect, but at the end of 1964 experiments will be begun with it. Installation of the VEPP-2 has been completed. To obtain a marked effect from the application of colliding proton beams, an accelerator is needed with an energy of at least 10 Gev. Since the ordinary accelerator at such energies is a very bulky machine, it was decided to combine the idea of colliding proton beams with the creation of an iron-less impulse accelerator with very large fields and a neutralized central busbar. This latter work of creating such a machine was reported by the authors at a Moscow conference

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held in 1956. The presence of a field with two directions in an iron-less accelerator with central busbar permits the acceleration of protons toward opposite sides in one machine, which makes possible the collision of protons in case of a suitable race-track. At the present time the Institute is developing a proton device with a magnetic field of about 200 kilogauss and radius of 2 meters for a particle energy of 12 Gev in the beam (equivalent energy is around 300Gev). Tests are being conducted on models, and an effective method of injection by overcharging of negative ions is under study. Also under development are an impulse electric power supply system of 100 million joules capacity and an hf power supply. Since 1958 the Institute has been conducting theoretical investigations on the limits of applicability of quantum electrodynamics [V. N. Bayyer, ZhETF, 37, 1490 (1959), and UFN, 78, 619 (1962)] for the calculation of the radiational corrections to the electrodynamic cross-sections [V. N. Bayyer and S. A. Kheyfets, ZhETF 40, 613-715 (1961) and Nuclear Physics (in print)], and on other problems of high-energy particle physics that are connected with the preparation of experiments on colliding beams [V. N. Bayyer, I. B. Khriplovich, V. V. Sokolov, and V. S. Synakh, in ZhTF, 1961]. The present report takes up under the mentioned three main headings the following pertinent topics: the accelerator-injection, storage paths, electron-optical channel,

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ACCESSION NR: AT5007921

input and output system, experiments on storage, proposed work, experimental set-up, physical layout of magnets, power supply, etc. Orig. art. has: 8 figures.

ASSOCIATION: Institut yadernoy fiziki SO AN SSSR (Institute of Nuclear Physics, SO AN SSSR)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: EE, NP

NO REF SOV: 012 OTHER: 003

Card 5/5

L 05822-67 EWT(m) IJP(c) GD

ACC NR: AT6031467 SOURCE CODE: UR/0000/65/000/000/0001/0014

AUTHOR: Budker, G. I.; Kushnirenko, Ye. A.; Skrinskiy, A. N.; Naumov, A. A.; Onuchin, A. P.; Popov, S. G.; Sidorov, V. A.; Tumaykin, G. M.

ORG: none

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B+1

TITLE: Present state of research on the VEP-1 electronic storage ring

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut yadernoy fiziki. Doklady, 1965. Sostoyaniye rabot na elektronnom nakopitele VEP-I, 1-14

TOPIC TAGS: synchrotron, electron scattering, electron beam/VEP-1 electronic storage ring, B-2C electronic synchrotron

ABSTRACT: The VEP-1 electronic storage ring consists basically of two paired high-vacuum magnetic tracks, 43 cm in radius, with a 3 x 4 cm^2 aperture a special B-2C electronic synchrotron, an electronic-optic channel, and a single thread system to extract the electron beam from the accelerator and insert it into the storage ring. This storage ring was designed for experiments in electron scattering with electrons of an energy of 2 x 130 Mev. It is now being used in

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